

THAT CLAIMED IS:

5 SUB B1  
1. A power generation system comprising:  
a rotor; and  
a stator positioned adjacent the rotor, the stator  
5 including a plurality of high voltage stator coils, each  
of the plurality of stator coils including a plurality  
of metal coil strands, a plurality of metal vent members  
positioned adjacent to the plurality of coil strands,  
and compact voltage grading means contacting each of the  
10 plurality of vent members for grading voltage between  
the plurality of vent members and the plurality of metal  
coil strands to thereby prevent an overvoltage  
condition.

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2. A system as defined in Claim 1, wherein the  
compact voltage grading means includes at least a first  
conductive strip member contacting a conductive portion  
of each of the plurality of vent members, a voltage  
5 grading layer of material positioned to contact the  
first conductive strip member, and at least a second  
conductive strip member positioned to contact the  
plurality of metal coil strands and the voltage grading  
layer to thereby provide an electrical flow path between  
10 the metal vent members and the metal coil strands.

3. A system as defined in Claim 2, wherein the  
voltage grading layer includes a plurality of layers of  
conductive tape, the plurality of layers including a  
first layer of conductive tape positioned to adhere to  
5 each of the plurality of vent members and the first  
conductive strip member, and a second layer of  
conductive tape positioned to adhere to the plurality of  
vent members and the second conductive strip member.

4. A system as defined in Claim 2, wherein the  
compact voltage grading means further includes  
conductive filler material positioned to contact

8. A stator coil as defined in Claim 7, wherein the compact voltage grading means includes at least a first conductive strip member contacting a conductive portion of each of the plurality of vent members, a voltage grading layer of material positioned to contact the first conductive strip member, and at least a second conductive strip member positioned to contact the

plurality of metal strands and the voltage grading layer to thereby provide an electrical flow path between the vent members and the metal strands.

9. A stator coil as defined in Claim 8, wherein the voltage grading layer includes a plurality of layers of conductive tape, the plurality of layers including a first layer of conductive tape positioned to adhere to each of the plurality of vent members and the first conductive strip member, and a second layer of conductive tape positioned to adhere to the plurality of vent members and the second conductive strip member.

10. A stator coil as defined in Claim 9, wherein the compact voltage grading means further includes conductive filler material positioned to contact surfaces of the plurality of coil strands, the first and second strip members, and the voltage grading layer to enhance decreasing of a voltage potential between the plurality of metal strands and the plurality of vent members.

11. A stator coil as defined in Claim 10, further comprising bonding filler material positioned to contact the conductive filler material of the compact voltage grading means to bond the compact voltage grading means.

12. A stator coil as defined in Claim 11, wherein each of the plurality of vent members has tubular shape and is positioned in a stacked relationship, and wherein the plurality of metal strands are positioned on each side of the stack of tubular-shaped vent members.

13. An overvoltage protector for a power generation system, the protector comprising:

at least a first conductive strip member positioned to contact one of a plurality of vent members;

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5 a voltage grading layer of material positioned to  
contact the first conductive strip member; and  
at least a second conductive strip member  
positioned to contact the voltage grading layer and at  
least one of a plurality of conductive coil strands  
10 forming a portion of a high voltage coil.

14. A protector as defined in Claim 13, wherein  
the voltage grading layer includes a plurality of layers  
of conductive tape, the plurality of layers including a  
first layer of conductive tape positioned to adhere to  
5 each of the plurality of vent members and the first  
conductive strip member, and a second layer of  
conductive tape positioned to adhere to the plurality of  
vent members and the second conductive strip member.

15. A protector as defined in Claim 14, further  
comprising a conductive filler material positioned to  
contact surfaces of the plurality of coil strands, the  
first and second strip members, and the voltage grading  
5 layer to enhance decreasing of a voltage potential  
between the plurality of metal strands and the plurality  
of vent members.

16. A method of grading voltage between internal  
vent members and conductive strands of a high voltage  
coil of a power generation system, the method  
comprising:  
5 connecting conductive portions of each of a  
plurality of internal vent members to a plurality of  
conductive strands of a high voltage coil.

17. A method as defined in Claim 16, wherein the  
connecting step for each vent member includes:  
forming an opening in insulation surrounding the  
vent members;

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- 5           positioning a first conductive strip member to  
contact conductive portions of the vent member;  
            positioning a voltage grading layer of material to  
contact and overlie the first conductive strip member;  
and  
10           positioning a second conductive strip member to  
contact the voltage grading layer and at least one of  
the plurality of conductive strands.

18. A method as defined in Claim 17, wherein the  
voltage grading layer includes a plurality of layers of  
conductive tape, and wherein the step of positioning the  
voltage grading layer includes adhering a first layer of  
5   conductive tape to the first metal strip member and the  
insulation surrounding the vent member and adhering a  
second layer of conductive tape to the insulation and  
the second conductive strip member. -

19. A method as defined in Claim 18, further  
comprising the step of positioning conductive filler  
material to contact the plurality of conductive strands,  
the first and second conductive strip members, and the  
5   first and second layers of voltage grading layer.